Evolvable Work-Practice Interfaces Between Humans and Agents, Phase I

Completed Technology Project (2004 - 2004)

Project Introduction

NASA science researchers and payload specialists will be supported in their tasks by increasingly complex computational components. Whether these are agents monitoring life support modules during space missions, or software enabling remote science experiments, the components will interact with humans in distributed virtual workgroups. This reality necessitates that we efficiently reconcile two fundamentally different work paradigms: the meticulously planned and controlled world of agents, and the situated, social, context-dependent approach to task execution specific to humans. This proposal investigates the development of interfaces between humans and agents that make the activities of both categories of participants efficient, effective, and robust, while allowing them to operate within their specific work paradigms. Since the work activities in which the mixed human-agent groups will engage will be novel and one-of-a-kind, interface developers will not be able to benefit from the extensive usability feedback available to commercial software developers. Instead, we propose a methodology which: 1) enables the early use of work-practice simulation to identify situations of potentially unsafe or inefficient human-agent interaction; 2) enables the human-agent interface to evolve into a system component supporting maximum human-agent synergy; and 3) which leverages NASA?s BRAHMS work-practice simulation environment.

Primary U.S. Work Locations and Key Partners
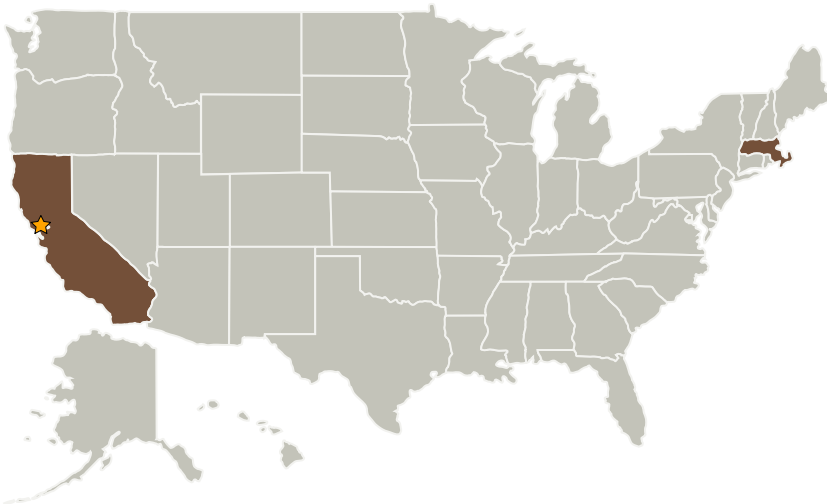
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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Organizations Performing Work	Role	Type	Location
⭐Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Charles River Analytics Inc.	Supporting Organization	Industry	Cambridge, Massachusetts

Primary U.S. Work Locations	
California	Massachusetts

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Subrata K Das

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  └ TX06.6 Human Systems Integration
    └ TX06.6.4 Operations Effectiveness

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